Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Revision of the Commission's Rules to Ensure	)	WT Docket No. 94-102
Compatibility with Enhanced 911 Emergency	)	RM-8143
Calling Systems	)	

To: The Commission

COMMENTS OF CINGULAR WIRELESS LLC

Cingular Wireless LLC ("Cingular") hereby submits these comments in response to the Commission's *Further Notice of Proposed Rulemaking* in this docket.[1] The *Further Notice* seeks comment on whether non-service-initialized mobile wireless phones ("noninitialized phones") used to make 911 calls "should provide for call back by Public Safety Answering Points (PSAP)."[2] Specifically, the Commission seeks comment on possible technical solutions to the call back issue.[3] If a technical solution is not feasible, the *Further Notice* asks whether all carrier-donated handsets should be initialized on a limited basis to enable call back by a PSAP and be labeled as such.[4]

Cingular does not believe that a technical solution for completing calls to non-service-initialized wireless phones is feasible, because any solution would necessitate the deactivation of features critical to

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[1] *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, *Further Notice of Proposed Rulemaking*, FCC 01-175 (rel. May 25, 2001) ("*Further Notice*").

[2] *Id*. at ¶ 1.

[3] *Id*. at ¶ 4.

[4] *Id*.

fraud prevention and/or exacerbate the scarcity of numbering resources. Moreover, while the Commission may encourage carriers to initialize donated handsets on a limited basis, it should refrain from imposing regulatory obligations that may discourage participation in donation programs. Instead, the appropriate resolution of this issue is the use of labeling in conjunction with the continued education of users of noninitialized phones.

I. THERE IS NO TECHNICAL SOLUTION AVAILABLE

The Commission first seeks comment on two technical proposals.[5] The first would be to assign a temporary number to provide call back capability to noninitialized phones, similar to the use of temporary numbers used to deliver wireless calls to roaming wireless customers.[6] These temporary numbers are termed Temporary Local Directory Numbers ("TLDNs") in CDMA/TDMA parlance and Mobile Station Roaming Numbers ("MSRNs") in the GSM context. The second would be to assign a pseudo number unique to the subscriber to provide call back capability.[7] For each, the Commission asks whether the proposed solution is possible and, if so, what the costs would be for implementation.[8] For the reasons stated below, neither solution is feasible.

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[5]In asking whether technical solutions are possible, the Commission notes that there are two major types of wireless phones for which call back capability is a problem: (i) carrier-donated phones that are no longer service initialized, and (ii) newly manufactured 911-only phones. In a footnote, the Commission also indicates that additional categories include out-of-service-area 911 calls where no roaming agreement exists and 911 calls from phones transferred among friends or family members after the owner's wireless service subscription has lapsed. *See Further Notice* at ¶ 3 & n.7. Cingular also notes that phones may be given away or sold to third parties with whom the original owner has no relationship. Regardless of the ultimate reason why the phone is not initialized, the technical impact is the same. *See, e.g., Further Notice* at n.22.

[6]*See id.* at ¶ 8.

[7]*Id.*

[8]*Id.*

A. Use of a TLDN Based on the CDMA/TDMA Model Is Not Feasible

It is not technically feasible with CDMA/TDMA technology to provide call back capability to a handset that is not service initialized by using a TLDN without deactivating the registration/authentication process designed: (i) to protect mobile networks and subscribers from fraud; and (ii) to properly route calls. The process is based upon a combination of two unique components emitted by a handset and used to validate the subscriber: a dialable ten digit Mobile Identification Number ("MIN") (*i.e.*, telephone number) and electronic serial number ("ESN"). The process works as follows: when a mobile phone is powered on, a scan is performed to locate the "preferred" or "home" system (the system subscribed to); once the scan is complete, the mobile phone automatically attempts to register on that system by verifying that the MIN/ESN combination present in the phone matches the information stored by the subscriber's carrier in the subscriber's account.

This system of checks and balances is necessary both to prevent fraud and to allow the proper routing of calls. Without these requirements, anyone could program a valid number into any phone and place unlimited phone calls that would be billed back to the unsuspecting true owner of the number. Likewise, it would be impossible without these requirements to determine to which handset a call should be routed,[9] and on what mobile system the mobile phone is currently operating.[10] Because the use of a

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[9]For example, if a subscriber decides to replace an old phone with a new one, the subscriber's MIN would be programmed into the new phone which has its own unique ESN. The service provider would then update the subscriber's information to reflect the new MIN/ESN combination resulting from the change in phones. Although the old phone would still have the old MIN programmed in it, only the new phone would receive calls to that number because of the MIN/ESN combination. This is due to the registration process. Without this process in place, both phones would ring (regardless of who may now own the old phone) and the first person to answer would receive the call.

[10]Consider, for example, an Atlanta, Georgia subscriber visiting friends in Indianapolis, Indiana. If a call is placed to the mobile telephone number and the registration process is complete, the wireless network will route the call to Indianapolis. Without the registration process, it would be impossible to know

TLDN as a substitute for an MIN in noninitialized phones would require the deactivation of the MIN/ESN protocol, its proposed use as a technical solution for the noninitialized phone call back problem is not viable. This is not an issue for roamers because a roamer has a "real" number — the TLDN is simply used to complete the call.

TLDNs are pooled (an average switch has only a few hundred of these numbers) and are *only* assigned to a mobile phone *after* a call to that mobile enters the switch.[11] The only way for a call to enter the mobile switch from the PSAP, however, is for the PSAP to dial a "real" telephone number (*i.e.*, the MIN). For example, 404-555-1212 is a "real" number and is recognized nationally as belonging to an Atlanta, Georgia switch. In the case of roamers, the "real" number allows the call to enter the switch, then a TLDN is assigned to deliver the call wherever the customer is roaming. 000-000-0000 (as an example TLDN), however, is neither "real" nor assigned to a specific switch. As a result, if the latter number were dialed from a landline telephone, the system would not know where or to whom the call should be routed. Thus, for any handset that does not have a valid dialable number, the assignment of a TLDN is impossible without deactivating all registration and authentication processes used to prevent fraud and route calls. Accordingly, Cingular cannot support such a solution.

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where the mobile is located, and therefore impossible to know where to route the call. This issue is compounded by the fact that there can be up to eight wireless carriers in any given location, so just locating the city a mobile is operating in is insufficient to deliver a call.

[11]This assignment lasts for milliseconds up to about 20 seconds. After the call is delivered to the phone, the number returns to the pool.

B. Use of an MSRN or Other Identifier Based on the GSM Model Is Not Feasible

Additionally, it is not technically feasible with GSM technology to provide call back capability to existing noninitialized handsets. GSM handsets require an International Mobile Subscriber Identity ("IMSI") before calls can be delivered to the handset.[12] The only place that IMSI resides (or can reside) is on a "smart card," or Subscriber Identity Module ("SIM").[13] In no instance can call back capability be provided for noninitialized handsets when there is no IMSI number to associate with the call.

For future handsets, with modifications to both the handset and the network, it may be possible to design call back capability to SIM-less handsets by using the International Mobile Equipment Identity ("IMEI")[14] for identification in lieu of the IMSI. The IMEI would then be used for paging the handset during the call back. Although the elements of this solution appear to be in place in specifications for future handsets, they have not been put together in a manner to support this capability. Even if they were, because there is presently no foolproof way to secure the IMEI from cloning, the operator's network would be at risk of being deluged by calls from cloned handsets that would appear to the network as identical. This would result in numerous handsets receiving the same call back page, which would effectively take down the network or, at best, make a portion of it unavailable for calls. Moreover, the network operators and their systems would be placed at substantial risk of fraud because there is no way for an operator to prevent calls from being placed by the handset. A more important consideration is the risk of criminal or

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[12]The IMSI is a number that fully specifies the subscriber to the GSM network. It consists of a country code, a network code, and the subscriber's phone number.

[13]A SIM is the card in a GSM phone that holds subscriber account information (among other things). It allows a subscriber to easily transition its service to another phone simply by removing the card from one phone and placing it into another.

[14]The IMEI is a number that specifies the piece of equipment (*i.e.*, the phone itself) that is being used. It essentially consists of a type-acceptance ID, a "final assembly code," and a serial number.

terrorist activities — that is, the risk that someone would take advantage of the inability of the operator to identify the handset and control its access to system resources.[15]

In sum, absent a complete change in the way call processing is done in the GSM network, which would cost millions of dollars and take years to design and complete (assuming there would be *international* support for such a change), there is no way to call back a handset without an IMSI associated with that call, and the only place that an IMSI resides (or can reside) is on a SIM. Mandating call back capability for noninitialized handsets (using an IMEI in lieu of an IMSI) places wireless networks at substantial risk of fraud and makes them susceptible to terrorist and/or criminal activities.

C. Use of a Pseudo Number Is Not Feasible

Finally, the use of a pseudo MIN or IMSI unique to the subscriber is not feasible because it would impose unacceptable costs through the exacerbation of the current scarcity of numbering resources. It is not possible to create a new telephone number to assign to noninitialized phones solely for call back purposes without ensuring that the number is unique and not duplicative of an existing "real" number currently in existence. As a result, the current scarce pool of numbering resources would be further diminished.

Numbering resources are currently administered by a numbering administrator who assigns pools of numbers for use by carriers to satisfy subscriber needs. In a scenario where noninitialized handsets

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[15]For example, suppose a group wanted to commit terrorist act. If noninitialized handsets are mandated to be allowed access to system resources to make emergency calls, without the ability of the operator to control access via the IMSI, it is possible for the terrorists to flood the network with multiple emergency calls (*e.g.*, by using a signal generator). This situation presents two potential hazards: (i) that the emergency services system would be overloaded with calls that appear to be emergency calls but are in effect nothing but noise, and (ii) that the radio resources of the network would be overloaded, thus preventing wireless calls to be made to *anyone*. At best, this would have the effect of isolating and rendering useless a portion of the network surrounding the criminal or terrorist activities, and at worst this could take down an entire wireless network.

would be assigned a unique number for 911 call back purposes, the handset owner will have no dealings with carriers, only manufacturers. Moreover, because the noninitialized handset owner does not subscribe to service, there is no method for assigning a "real" number to the handset. The Commission would need to revise its current numbering procedures to include manufacturers. Such a result is beyond the scope of this proceeding, however, and would be contrary to the Commission's mandate to ensure that the limited numbering resources are used efficiently and that all carriers have the numbering resources necessary to compete in the rapidly growing telecommunications marketplace.[16]

II. WITH THE EXCEPTION OF LABELING, OTHER PROPOSED REGULATORY ALTERNATIVES ARE CONTRARY TO THE PUBLIC INTEREST

Barring the availability of technical solutions, the Commission seeks comment on several more narrowly focused options. In particular, the *Further Notice* asks whether all handsets donated by carriers on a voluntary basis to at-risk users should be labeled and initialized on a limited basis to enable call back by a PSAP.[17]

While the Commission may encourage carriers who voluntarily participate in such donor programs to provide limited service-initialized phones to the organizations that run them, the public interest would not be served by mandating through regulatory fiat that every carrier choosing to participate in such programs must provide service-initialized phones. The unfortunate consequence of such regulation would be to provide a disincentive for carriers to participate in the voluntary donor programs in the first instance. As a result, the number of free donor phones available to at-risk individuals may actually decline. The public

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[16] *See Numbering Resource Optimization, Report and Order and Further Notice of Proposed Rulemaking in CC Docket No. 99-200,* 15 F.C.C.R. 7574 (2000), *recon. and clarification in part, Second Report and Order, Order on Reconsideration in CC Docket 96-98 and CC Docket 99-200, and Second Further Notice of Proposed Rulemaking in CC Docket 99-200,* 16 F.C.C.R. 306 (2000).

[17] *Further Notice* at ¶ 4.

interest is better served by providing at-risk individuals with phones capable of calling 911, but lacking call back capability, than no phones at all.

The appropriate resolution of this issue is the clear labeling of donor phones that are not service-initialized specifying their limitations, combined with the continued education of users. The Commission should encourage those distributing wireless phones that will be used in an noninitialized mode to call 911 to clearly inform the potential users that they cannot be called back by a 911 service provider. Users of such phones should also be advised that if they want call back capability, the most reliable alternative is to establish a service relationship with a wireless carrier. In today's competitive environment, there are many low cost "security packages" available to people who subscribe to a wireless carrier's service. These subscriptions ensure the ability for 911 call back. Prepaid wireless services also offer a low cost alternative that includes 911 call back in the home service area.

As a final matter, the Commission seeks comment on the call back problem for phones transferred among friends and family members, noting that at least one commenter has advocated permitting noninitialized handsets to be reprogrammed to the same ESN as the original owner's service-initialized handset.[18] Not only is such "cloning" contrary to current law,[19] this proposed solution would not work with the registration/authentication process described above. While the mobile number and the ESN may match, the Authentication code or "A-Key" would not match and the system would restrict the use of the

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[18] *Id.* at ¶ 18.

[19] *See* 47 C.F.R. § 22.919(a) ("*Each* mobile transmitter in service must have a *unique* ESN."); *id.*, § 22.919(c) ("The ESN must be factory set and *must not be alterable, transferable, removable or otherwise able to be manipulated.* Cellular mobile equipment must be designed such that any attempt to remove, tamper with, or change the ESN chip, its logic system, or firmware originally programmed by the manufacturer will render the mobile transmitter inoperative.") (emphasis added).

handset. Accordingly, Cingular agrees with the Commission's tentative conclusion that this segment of wireless 911 users would be served best by consumer education programs.[20]

CONCLUSION

In light of the foregoing, no feasible technical solution exists for completing calls to non-service-initialized phones. Moreover, the Commission should refrain from imposing regulatory obligations that may discourage carrier participation in donation programs. Instead, the appropriate resolution to the call back issue is the use of labeling in conjunction with the continued education of users of noninitialized phones.

Respectfully submitted,

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[20] *See Further Notice* at ¶ 19.